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Hearing on

**Strengthening Pension Security:
Examining the Health and Future of Defined Benefit Pension Plans**

Testimony of

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Jack VanDerhei is a faculty member at Temple University's School of Business and Management (Department of Risk, Insurance, and Healthcare Management), and also is Research Director of the Employee Benefit Research Institute (EBRI) Fellows' Program, Washington, DC. EBRI is a private, nonprofit, nonpartisan public policy research organization based in Washington, DC. Founded in 1978, its mission is to contribute to, to encourage, and to enhance the development of sound employee benefit programs and sound public policy through objective research and education. EBRI does not lobby and does not take positions on legislative proposals.

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STATEMENT BY Jack VanDerhei

Temple University and EBRI Fellow
June 4, 2003

Mr. Chairman, and members of the Committee. I am Jack VanDerhei, Temple University and research director of the EBRI Fellows' Program.

It is my pleasure to appear before you today to discuss Strengthening Pension Security: Examining the Health and Future of Defined Benefit Pension Plans. I will address that topic by providing some background, context, and recent research on "DB" pension plans, as well as current trends.

An Overview of the Defined Benefit Pension Plan System¹

Introduction

A defined benefit (DB) plan is a retirement plan in which benefits are calculated according to a formula or rule. Formulas are more common and are usually based on either years of service and a percentage of pay or a negotiated flat-dollar amount (Allen et al., 1997). Benefit levels, as determined by the formula used, are guaranteed as a stated retirement income commencing at a specified age. Although retirement benefits are usually expressed as a life annuity,² lump-sum distributions are increasingly available. While DB plans are always designed as retirement vehicles, certain defined contribution (DC) plan types and designs have features that resemble capital accumulation plans (i.e., plans used for savings, not necessarily for retirement). Traditionally, DB and DC plans have different features associated with each. For example, DB plans usually pay benefits in the form of life annuities, whereas DC plans typically pay lump-sums. However, one fundamental difference between DB and DC plans exists. Under a DB plan, a formula guarantees the final benefit level; in a DC plan, a formula stipulates how funds are allocated to individual accounts.³ Because so few fundamental differences exist between plan types, employers have significant leeway to design individual plans tailored to their specific objectives. Recently, an increasing number of employers have used this leeway to combine traditional DB plan features with features usually associated with traditional DC plans, and vice versa. (Many of these arrangements are called hybrid plans, and are discussed later.) As a result, the difference between DB and DC plans is becoming more nebulous.

Benefit Calculation and Plan Funding

When establishing a DB plan, employers usually choose between flat benefits and pay-related benefits. A *flat benefit formula* bases benefits on a flat-dollar amount for each year of service recognized under the plan (e.g., \$400 in annual retirement multiplied by years of service).⁴ Pay-related benefits can be divided into two variations, based on the definition of pay. *Career-average formulas* define pay as all earnings during plan participation in order to calculate benefits. *Final-average formulas* define pay as only those earnings received during an averaging period just prior to retirement. *Career-average formulas* have two variations. Final retirement benefits can either equal: (a) the sum of a percentage of salary earned each year recognized by the plan (e.g., the sum of 2 percent of annual pay for each year of service) or (b) the average of all annual salaries recognized by the plan multiplied by a percentage (e.g., \$30,000 in average pay multiplied by 50 percent).⁵ DB plans typically retain an actuary to annually assess plan obligations based on the plan's specified formula and to determine the amounts the plan sponsor should place in the pension fund in order to comply with funding requirements. (These amounts are based on the selected actuarial valuation method and appropriate actuarial assumptions.) The plan sponsor is then ultimately responsible for making required contributions as well as ensuring that the fund's assets are invested and benefits are paid; however, these responsibilities are often delegated to third parties. Although it is

uncommon, private-sector workers may have the option of contributing to the DB plan as well, but their contributions are not given tax-favored status.⁶

Retirement Income Risk

There are many risks associated with participants' assets in retirement savings vehicles:⁷

1. Replacement rate inadequacy.
2. Longevity.
3. Investment risk.
4. Inflation risk.
5. Private plan sponsor bankruptcy risk (for DB plan benefits in excess of Pension Benefit Guaranty Corporation [PBGC]-covered maximums).

Replacement rate inadequacy risk deals with the possibility that the combination of Social Security, employment-based retirement income, and individual savings will be insufficient to maintain the same standard of living a preretiree enjoyed when he or she retires. While in the past this risk could be caused by financial instability of an employer sponsoring a private pension plan, today PBGC will pay benefits (subject to prescribed limits) for most private DB plans⁸ whose sponsors are unable to meet plan obligations due to bankruptcy. As a result, plan sponsor bankruptcy risk among private plans today is limited to the risk of losing benefits above the amounts guaranteed by the PBGC, should the employer go bankrupt.

The second risk—**longevity risk**—can be defined in several ways. One definition (Bodie, 1990) defines it as the risk that the retiree will outlive the amount saved for retirement. A primary rationale for paying retirement plan benefits in the form of life annuities is to insure against this risk. Hence, this risk can be insured against through either the DB or DC approach only if benefits are paid in the form of an annuity or if participants effectively self-annuitize.⁹

The third risk—**investment risk**—is a relatively straightforward (albeit often misunderstood) concept. While many equate this term with variation in retirement benefits resulting from fluctuations in the financial markets, investment risk may also refer to the risk that investments will underperform the rate of return needed for sufficient retirement income. Indeed, underperformance may arise from down-side fluctuations in financial markets, but it also stems from investing in low-risk assets that do not earn adequate return rates. While a DB plan offers no direct investment risk to participants,¹⁰ the amount of this risk participants are exposed to under a DC approach is often misunderstood. Many assume that DC investments are risky because asset allocation choices may be subject to wide market fluctuations. However, many DC plan sponsors provide guaranteed investment contracts (GICs) and/or stable value funds as investment options, which provide some degree of assurance that participants' investments will not decline in value. While many might assume that these options entail no investment risk for participants because the principal will typically not decline by more than a de minimis amount, choosing such investments may entail investment risk if the rate of return on these investments is lower than that needed to grow a sufficient retirement nest egg.

The fourth risk—**inflation risk**—can only be directly addressed by the plan sponsor in DB plans, and is perhaps the most difficult to deal with in the private sector. Social Security and many of the public DB pension plans have the perceived resources to commit to some type of guarantee that inflation's impact on the purchasing power of this component of retirement income will be mitigated.¹¹ However, private sponsors generally have not been able to cope with this problem other than to hold out the possibility of providing ad hoc increases in pension payments on a somewhat periodic basis.¹²

Issues Concerning Sponsoring, Funding, and Providing Benefits to Participants and Beneficiaries Under This System

Employers' Accounting For Pensions

Employers must recognize the economic value of future promises in their financial statements. Income statement accounting affects reported earnings, and this affects profitability and the value of the company. Balance sheet accounting affects the employer's liability and assets, thus the net worth of the enterprise and its ability to borrow money. In short, accounting for benefit promises as they are earned, rather than only when they are paid (or when the contributions are made), has significant economic implications and implications for employer decision on whether or not to provide defined benefit plans.

Accounting procedures for pension plans consist of three components, each of which is controlled by a separate Financial Accounting Standards Board (FASB) Statement. FASB Statement No. 35, *Accounting and Reporting by Defined Benefit Pension Plans*, establishes financial accounting and reporting standards for the annual financial statement of a defined benefit pension plan. FASB Statement No. 87, *Employers' Accounting for Pensions* (FAS 87) establishes financial reporting and accounting standards for an employer that offers pension benefits to its employees. Closely related to FAS 87, FASB Statement No. 88, *Employer's Accounting for Settlements and Curtailment of Defined Benefit Pension Plans and for Termination Benefits*, establishes standards for an employer's accounting for settlement of defined benefit pension obligations (such as purchasing annuities for retirees), for curtailment of a defined benefit pension plan (e.g., closing of a plant), and for termination benefits.

While the impact of the statements has come under considerable criticism in the financial press recently as the bear market caused increasing skepticism with respect to the reported numbers, it is important to realize that FASB's objectives when the rules were designed in the 1980's was to inject into pension accounting a way to more meaningfully measure pension expense and to introduce balance sheet items (including footnotes) helpful to financial statement readers.¹³ The overall impact of the rules varied among employers depending on plan design, the age of the work force, actuarial assumptions, and the plan's financial status at the time of transition to the new rules. Nevertheless, it appears safe to say that the latitude for management discretion in pension accounting was greatly reduced. The sponsor is no longer able to choose an actuarial cost method that provides the desired stream of pension expense over time and the range of acceptable discount rates for determining the present value of pension obligations was implicitly narrowed.

It appears that a current concern with respect to FAS 87 is its lack of transparency for at least some investors.¹⁴ In an attempt to improve investor understanding of corporate earnings reports, Standard & Poor's (S&P) released a set of definitions last year to be used in generating core earnings figures. The definitions include pension costs but exclude pension gains. S&P's rationale for this asymmetric treatment was:

Some may be concerned that pension income is excluded from Core Earnings, while pension costs are included. This apparent conflict is in reality no conflict at all. The two are not parallel because they arise in different places from different activities. Pension costs are part of employee compensation and arise because people are hired to work and, hopefully, produce revenues and Core Earnings. Pension gains, in contrast, have nothing to do with the corporation's core business or the creation of Core Earnings. The size and timing of pension gains reflect the skill of the portfolio managers engaged to manage the pension plan and the foresight of the pension plan sponsor in establishing the investment policy and hiring the portfolio managers. Both the gains and the costs are related to the pension, but the similarity ends there. (Blitzer, Friedman, Silverblatt: 2002.)

In March of this year the FASB decided to add to its agenda a limited-scope project intended to improve pension plan disclosures. While this procedure may yield draft rules in a few months, FASB opted not to embark on a comprehensive project on pension accounting that might have entailed substantive modification of the smoothing mechanisms in FAS 87 (Burkholder, 2003). However, the future of U.S.

pension accounting and its impact on plan sponsorship may be influenced by international standards. In 2001 the United Kingdom adopted FRS 17, a standard that will put the market value of pension plan assets and liabilities on the corporate balance sheet. Under this standard, gains and losses are recognized as they occur, rather than held off the balance sheet and amortized as they are under FAS 87.¹⁵

Although a certain amount of experience gains and losses are allowed to be deferred under a combination of a corridor approach as well as gradual amortization of amounts outside of the corridor under FAS 87, some companies are said to have attempted to control this volatility by shifting asset allocation away from stocks to more stable investments that would allow some degree of immunization¹⁶ against movements in interest rates. A disadvantage of this strategy is that the sponsor gives up the opportunity to produce additional investment income (assuming a positive equity premium) for the plan that can help reduce future pension contribution and/or provide for increased pension benefits.

If all smoothing devices for pension accounting were eliminated, the relative advantage of sponsoring defined benefit plans would likely decrease for some sponsors as they would either be fearful of the increased volatility in the pension expense and/or need to increase expected contributions in the future if they assume a less risky asset allocation.

Funding Requirements

Qualified defined benefit plans must satisfy a complex set of minimum funding requirements that have been adopted by Congress in an attempt to assure that the vast majority of plans will have sufficient assets to pay the promised benefits when they become due.¹⁷ A detailed description of these requirements is beyond the scope of this testimony but several recent papers provide excellent background on funding requirements (Joint Committee on Taxation, 2003), the financial condition of the Pension Benefit Guaranty Corporation and possible reforms (Kandarian, 2003), and problems in pension funding rules due to Treasury bond rates becoming inordinately low (Gebhardtshauer, 2003; O'Flinn, 2003; Eickelberg, 2003).

There is no doubt that recent reports paint a gloomy picture of the financial health of the single-employer defined benefit system. In fact a report released last month by Wilshire (Nesbitt, 2003) proclaimed that corporate pension funds suffered their worst year ever. Based on 10K filings from 320 companies in the S&P 500 Index that maintain defined benefit plans, the ratio of assets to liabilities fell from 104 percent to 83 percent with 89 percent of the sponsors now underfunded.¹⁸

While these numbers have caused concern for the future of the single-employer defined benefit system, there are three points that need to be considered when contemplating a legislative reaction:

1. The self-correcting mechanisms in the pension funding requirements have already come into play with aggregate contributions for these plans increasing from \$12 billion in 2001 to \$41 billion in 2002.
2. One needs to keep in mind that the "perfect storm" scenario of a sustained three-year bear market coupled with abnormally low interest rates is an extremely unusual situation and a convincing argument could be put forth that this would not be the proper baseline to use to establish new federal requirements with respect to pension funding.
3. An underfunded plan is not a problem as long as the sponsor remains financially solvent.

One obvious solution to the problem of insufficient funding that has at least temporarily been adopted is the repeal of the full-funding limit for plan years beginning in 2004 and thereafter.¹⁹ The full-funding limit has been in effect since ERISA and has provided a maximum limit on the deductible contributions a plan sponsor could make in a year. This was rarely a binding constraint until it was modified by OBRA '87 to add a new requirement: plan assets (as defined in the Internal Revenue Code) could not exceed 150 percent of the plan's current liability (including the current liability normal cost). In essence, this limited the amount of assets to a value based on the plan's termination liability as opposed to an ongoing liability (the former does not project for future wage growth while the latter does, which can produce a significant

difference in final-average plans, especially with a young work force). Although the 150 percent value was eventually increased to 170 percent, it appears that for many plans the cushion would have been insufficient in the face of a three year bear market combined with a sustained drop in discount rates.

While there is little doubt that had these limits not been imposed in the 1980's, many plans would no doubt be better funded today. However if the OBRA '87 full-funding limit was a binding constraint on employer contribution behavior among well-funded plans, one would have expected to see a bunching of plans at the full-funding limitation threshold after the constraint had been in place for several years. Instead, Ippolito (2001) shows that by 1995 there had already been a major shift of plans with funding ratios in excess of 150 percent in 1986 to far less than that value. He hypothesizes that another potentially significant impact on pension contributions for well-funded plans was a series of excise taxes on employers that terminated their defined benefit plans and reverted the excess assets back to the firm after paying the employees their promised benefits. These "reversion" taxes started at 10 percent in 1986 and eventually increased to 50 percent in 1990, meaning that any excess assets would be taxed at about 85 percent (corporate tax plus reversion tax).²⁰ He estimates the impact of reversion taxes on pension funding, holding constant pension funding limits, plan maturity and other confluences of time trends, and found strong evidence in favor of the reversion-tax theory of defunding.

Cash Balance Plans²¹

The recent trend among large employers toward conversion of traditional final-average and career-average defined benefit plans to cash balances has raised a controversial and complex set of issues. A cash balance plan is a "hybrid" type of pension plan²²—i.e., one that takes on the characteristics of both a defined benefit plan and a defined contribution plan. Legally, a cash balance plan is a defined benefit plan. A cash balance plan offers some of the popular advantages of a defined benefit plan but is designed to look more like a defined contribution plan, with an individual "hypothetical" account that appears to accumulate assets for each participant. Cash balance plan accounts are a record-keeping feature only, as these plans are funded on an actuarial basis, in the same way that defined benefit pension plans are funded. Therefore, at any point in time, the benefits promised to a participant are based on the plan formulae and not on the assets in his or her "account."

In a typical cash balance plan, a participant's retirement account grows by earning annual credits that may be based on a flat percentage of pay but that might be integrated with Social Security benefits (Quick, 1999). However, it is also possible to provide age or service-weighted pay credits under these plans. Cash balance plans also provide a yield on the hypothetical account that is typically defined as either the 30-year Treasury rate or the one-year T-Bill rate plus a stated percentage (Gebhardtshauer, 1999).

Fundamental Economic Distinction Between Final-Average and Cash Balance Plans

Under either the final-average or cash balance plans illustrated in Figure 1, an employee starting at age 25 will obtain the same benefit value at age 65 if he or she remains with the same employer for a full career. Nevertheless, the accrual rates under each plan differ fundamentally. The annual increase in benefit value (viz., how much additional retirement income an employee will earn by working one more year) tends to be much higher for young employees under the cash balance plan and much higher for older employees under the final-average plan. This is true even though the cash balance plan illustrated in this figure adopts a service-weighted pay credit schedule.²³

A difference in accrual rates between older and younger workers upon conversion from a final-average to a cash balance plan is likely to exist whether or not a so-called wear-away provision (explained later) is included in the plan. The difference is conceptually similar to the effects of changing a final-average plan to a career-average plan or, more drastically, terminating a defined benefit plan and establishing a defined

contribution plan. However, the magnitude of the difference is influenced by plan-specific design parameters.²⁴

Employees faced with the type of graph shown in Figure 1 are likely to wonder why the shapes look different. The difference essentially lies in the different determinants of benefit value under each type of plan. While the present value of the annual accrual of pension wealth expressed as a percentage of compensation under a final-average plan at any point in time depends on age, service, and pay, it depends predominantly on pay and service (and a lesser extent on age) under a cash balance plan. Therefore, even if the overall generosity of a plan remains the same after conversion to a cash-balance formula, higher accruals for young employees means that accruals for older employees will likely decrease unless some type of grandfathering or transition provisions (explained below) are provided to older workers. For example, an employee participating in the hypothetical final-average defined benefit plan in Figure 1 would have a present value from his or her defined benefit plan at age 55 of approximately \$95,000, as opposed to approximately \$135,000 for a similar employee who had participated in the hypothetical cash balance plan for the same period of 30 years. However, if the hypothetical final average plan were then converted to the hypothetical cash balance plan without the provision of any type of transition credit, the employee would not benefit from the rapid escalation in pension wealth from age 55 to 65 that is associated with the final average plan. Instead, during the final 10 years he or she would experience a slope of the accrual path similar²⁵ to that experienced by the participant who remains under the cash balance plan for the entire 40 years. As a consequence, the participant will not end up with the same financial position at age 65 but, barring any transition provisions, would experience a decrease in pension wealth of approximately 23 percent.

Another significant difference between a traditional defined benefit plan and a cash balance plan concerns the inherent uncertainty involved in estimating the nominal amount of retirement income. Traditional defined benefit plans are not typically thought of in this regard since the amount is specified in a formula and (with the exception of certain integrated plans) can be directly computed once the average compensation and years of participation are known. However, it appears that an increasing percentage of defined benefit participants are now receiving their distributions in the form of lump-sum distributions (LSDs) – a form that can provide great uncertainty to employees with respect to the amount that they will receive due to fluctuations in the relevant discount rates (Bone, 1999). In contrast, cash balance plans provide LSDs that are stabilized, but annuity values under these arrangements may be subject to fluctuations in annuity purchase prices although it appears some employers are willing to hold annuity purchase rates constant in the plan (Gebhartsbauer, 1999).

Potential Advantages: Cash Balance vs. Final-Average Plans

Before discussing key public policy issues and the possible ramifications of modifying the existing legislative and/or regulatory landscape, it may be helpful to consider why a sponsor of a final-average defined benefit plan may be interested in converting to a cash balance plan:²⁶

Ease of communication vs. invisible plan syndrome. Sponsors of traditional defined benefit plans often bemoan the lack of recognition they receive from their employees, even though substantial sums of money are contributed and/or accrued annually. When the quality of workers' information regarding traditional pension offerings was evaluated,²⁷ about one-third of workers queried were unable to answer any questions about early retirement requirements, and about two-thirds of those who offered answers about early retirement were wrong (Mitchell, 1988). In contrast to explaining the complex benefit formulas used by traditional defined benefit plans, conveying information through theoretical account balances under cash balance plans facilitates employee appreciation of both current pension wealth and the annual pay and interest credits that increase pension value over time.

No magic numbers of age and service. Final-average defined benefit plans often require employees to satisfy some combination of age and service before they are entitled to retire with an early retirement subsidy, and the magnitude of the dollar loss from leaving prior to that time can be substantial

(Ippolito, 1998). In contrast, the accrual pattern under a cash balance plan typically does not have a sudden, rapid increase after attainment of specific age and service criteria. As a result, cash balance plans are more attractive to a mobile work force.

Higher benefits to employees who do not stay with one employer for their entire career. Figure 2 shows the percentage increases in annual retirement benefits at normal retirement age for an employee in a hypothetical cash balance plan versus a hypothetical final-average defined benefit plan. The figures in this figure are tabulated from a CRS report to Congress that includes calculations for two types of employees: (a) one who enters the employer's plan at age 25 and remains in that plan for 40 years and (b) one who changes jobs every 10 years (Purcell, 1999). Comparing the two sets of bar graphs, one can see that for a hypothetical individual staying at the same job for his or her entire life, the cash balance plan provides a larger benefit after the first 10 and 20 years of service. But, by age 55, the final-average plan is slightly more valuable, and by retirement age the benefit derived from the final-average plan would be 30 percent larger than the cash balance benefit. However, this "one-job-for-life" scenario only applies to a small percentage of the work force (Yakoboski, 1999). Employees are more likely to have four, if not more, jobs during their careers. The second set of bar graphs show that in those cases, the series of cash balance plan benefits dominate those accrued under the final-average plans at every age, and the final retirement benefits are approximately 40 percent larger.²⁸

Potential Advantages: Cash Balance vs. Defined Contribution Plans

Of course, an employer that sponsors a final-average plan also has the alternative of terminating the existing defined benefit plan (assuming it is adequately funded) and setting up a defined contribution plan through which to provide benefits for future service. However, several considerations may make this option problematic:

Ease of conversion vs. new plan establishment. Whereas a conversion from a final-average defined benefit plan to a cash balance plan only requires a plan amendment (Rappaport, Young, Levell, and Blalock, 1997), terminating the same plan and setting up a successor defined contribution plan may trigger a reversion excise tax of either 20 percent or 50 percent (Alderson and VanDerhei, 1991). If the defined benefit plan was overfunded, the surplus in a conversion to a cash balance plan would be used to reduce future contributions (as it would under the traditional plan); if it was underfunded, the unfunded liability is amortized in the normal fashion (Warshawsky, 1997).

Guarantee of employee participation. The noncontributory nature of most (if not all) cash balance plans eliminates the need to worry about employees who choose not to participate or make *de minimis* contributions in a 401(k) arrangement (Yakoboski, 1994). As a result, employees are guaranteed a benefit under a cash balance plan without needing to actively choose to participate in the plan, and the plan is protected from possible disqualification due insufficient participation among lower-paid workers.

Retirement pattern predictability. Investment risk is typically directly borne by employers under a cash balance plan and by employees under a defined contribution plan (see Auer 1999, however, for one notable exception). As a result, the employer is better able to predict retirement patterns under a cash balance plan, since retirement income will not be susceptible to market fluctuations. Under a defined contribution plan, employers may face unexpected increases in early retirements during a strong bull market and unexpected delays of retirement during a market correction (especially if it is prolonged).

Retirement benefit predictability. Since employers directly bear investment risk under cash balance plans, they need not worry about overly conservative worker-investors. Figure 3 below shows the 1996 percentage of 401(k) participants with zero exposure to diversified equities by age cohort (VanDerhei, Galer, Quick, and Rea, 1999). Although approximately one-half of these individuals in each age cohort have some equity market exposure through company stock and/or balanced funds, a significant percentage of them may be subjecting themselves to expected rates of return too low to generate sufficient retirement income at normal retirement age.

Funding flexibility. Finally, a cash balance plan may have more funding flexibility than a defined contribution plan, depending on the type of commitment made to employees. Although some profit-sharing plans provide for annual contributions that are entirely discretionary for the plan sponsor (Allen, Melone, Rosenbloom, and VanDerhei, 1997), a defined benefit plan is the only vehicle that will allow employees to continue their normal benefit accruals while employer contributions are reduced or even temporarily curtailed.

Potential Limitations of a Conversion From a Defined Benefit to a Cash Balance Plan

Although using a cash balance plan to provide benefits that are easily communicated, typically provide no investment risk to employees, and maintain the funding flexibility inherent in a defined benefit plan may appeal to many employers, cash balance plans also present several tradeoffs:

Smaller accruals for older workers. As mentioned earlier, unless some type of transition benefits are provided, older employees are likely to receive smaller accruals for their remaining years, regardless of whether a “wear-away” provision (described below) exists.

Preretirement income replacement. Although their understanding of current pension wealth and future increments will no doubt improve vis-à-vis the previous final-average plan, employees actually may be more uncertain about how their future benefits will relate to their future earnings after conversion to a cash balance plan. For example, a final-average plan that pays 2 percent of an employee’s average earnings during his or her last three years of service, by definition, replaces 50 percent of preretirement earnings after 25 years of service.²⁹ However, to understand the extent to which cash balance benefits will replace preretirement earnings is far more difficult, since cash balance plans are a type of a career-average formula that provides interest credits that are likely tied to some external financial market vehicle and/or index.

Lump-sum distributions. Due to the increased likelihood that participants in a cash balance plan will end up with a LSD as opposed to a lifetime annuity, it is more likely that they will face a longevity risk in addition to a post-retirement investment risk. It should be noted, however, that with some exceptions, cash balance plans are required to offer annuities as an option to their participants, and it appears that there is an increasing propensity for traditional final-average defined benefit plans to offer LSDs and for participants to choose them when offered (Watson Wyatt, 1998). Also, even though cash balance plans communicate benefits in terms of a lump-sum account balance, at least some of them limit the ability of employees to cash out their accounts.³⁰

Key Issues

In recent years, there has been a flurry of press accounts, court cases, and legal and regulatory activities with respect to cash balance plans, specifically as they relate to conversions from existing final-average plans. This section of the testimony provides some insight into each of these in an attempt to clarify some of their more complex and controversial concepts.

Do Cash Balance Plans Result in Cost Savings to the Sponsor and/or Benefit Reductions to the Participants? It is certainly possible for conversion to a cash balance plan to result in lower *long-term* pension expense, depending on the generosity of the new plan relative to the existing plan. In essence, this is no different than switching from a defined benefit to a defined contribution plan, and similar projections would need to be applied to determine if this were the case (VanDerhei 1985). However, even if such a calculation was performed on two retirement plans, it would not necessarily indicate the extent of cash balance savings, if any, since any savings due to cash balance plan conversion may be offset by other increases in benefits or compensation.³¹

Assuming such a calculation was performed, the cash balance plan may also prove to be more expensive than originally calculated if turnover is higher than assumed. This would result from plan assets being reduced below expected levels, and the spread between the accrual in the plan and the actual fund performance may be a factor in increased costs.³² Turnover could increase due to future labor patterns

that impact all employers, but it might also increase as a direct consequence of providing a more level benefit accrual over time that decreases the “job lock” attributes of the existing plan.

However, there may also be *short-term* abnormalities in the pension cost and/or expense structure resulting from the conversion. In essence, the claims of cost savings from a conversion to a cash balance plan may be at least partially due to a timing issue under the accounting and/or funding rules required for all defined benefit plans (including cash balance plans). Although the calculations are complex, one of the driving forces behind this short-term cost reduction involves the computation of the cost of accruing a benefit based on career-average pay (the cash balance plan) for one based on final-average pay under the previous plan (Demby, June 1999).³³

Brown et al (2000) classified employers who shifted from traditional pensions to hybrid plans into three groups: cost reducers, cost neutral shifters, and cost increasers. When looking at the changes made only to defined benefit plans, they found that 56.4 percent of the plans they studied fell into the cost reducing class; 20.5 percent adopted changes that were cost neutral; and that 23.1 percent increased their pension cost in the shift to hybrid plans. Next, they considered changes made to plan sponsors' defined contribution plans adopted in conjunction with the shift to a hybrid plan. Adding in these changes, they found that 44.9 percent of sponsors reduced costs in the shift to their new pension package, 17.9 percent adopted changes that were cost neutral, and 37.2 percent adopted changes that increased costs. On average, they found pension costs were reduced by an average of only 1.4 percent in the shift to the new package

Clark and Schieber (2000) demonstrate that a significant portion of benefit reductions that do occur result directly from eliminating early retirement subsidies.³⁴ Figure 4 shows the effects of the shift to hybrid plans for three hypothetical workers. In every case reflected in the figure, the majority of the hybrid plans reduced benefits for the prototypical workers by less than the amount of the reduction that would have occurred if they had simply eliminated their early retirement subsidies. For any of the cases where the worker is assumed to retire at age 55, less than 16 percent of the plans would reduce benefits by more than the elimination of the early retirement subsidies.

Transition/grandfathering. Several transition methods are available to a sponsor that chooses to mitigate the financial impact that may result in a switch from a traditional final-average plan to a cash balance plan (Rappaport, Young, Levell, and Blalock, 1997):

- Pay the greater of the benefit that would have been paid under the old plan and the benefit due under the new formula for a subset of the employees (either for a limited time period or until termination or retirement).
- Provide extra account balances at transition to make up for the greater benefit which would have been available at early retirement.
- Provide extra account balances to make up for the fact that final-average earnings will not be directly used in the formula.
- Provide a supplemental additional benefit.

A PricewaterhouseCoopers survey of about 75 cash balance conversions reveals that in almost all cases the employer provided transition provisions beyond the legally required minimums (Sher, 1999).

In 88 percent of the plans examined in Clark and Schieber (2000), the plan sponsor provided some form of transition benefit for some workers affected. Figure 5 shows the potential effect that hybrid plan conversions would have had on workers who were 50 years old at the time of conversion with 25 years of service under their old plan. Distributions of the benefits as a percent of prior benefits that would have been payable at various ages under the pre-conversion plans are presented for three different retirement ages (55, 60 and 65) for estimates with and without the transition benefits. The transition benefits provided in the shift to hybrid plans appears to significantly mitigate the adverse effects of the plan changes. For example if this stylized worker retired at age 55, there would have been a reduction for

nearly 80 percent of the plans without a transition benefit; however, this number decreases to 34 percent when the transition benefits are included.

Wear-away. If a final-average plan is converted to a cash balance plan, the initial value of a participant's cash balance account *may* be set at less than the value of benefits accrued under the previous plan. However, it is important to note that this may not reduce or take away previously earned benefits. It may mean, though, that *initially* some workers won't accrue any new benefits until the pay and interest credits to their hypothetical accounts bring the account balances up to the value of the old protected benefits.

While most press coverage of wear-away has focused on its potential duration, Clark and Schieber (2000) point out that the rate of wear-away is also important and they compute the potential cumulative wear-away as a percentage of pay at base age for a stylized individual under two scenarios: (1) a transition to a hybrid plan at age 54 and (2) that which inherently exists in a traditional plan age 55. Figure 6 shows the cumulative distribution function of the potential cumulative wear-away based on their computations. In nearly half the cases, employers structured the new plans to make the wear-away issue moot. In the remaining plans, the cumulative wear-away that workers faced was generally not as great as it was in the prior plans being replaced.

As pointed out in testimony to the ERISA Advisory Council Working Group studying hybrid plans, benefit formulae that end up resulting in periods with no new accruals for some employees have been a practice approved by the Internal Revenue Service for many years (Chambers, 1999). Often plan changes, such as updating plan mortality assumptions, the resultant standardization of disparate pension plans as a result of mergers and acquisitions, or even revising a plan to meet new statutory requirements (such as legislative changes to the Sec. 401(a)(17) limits earlier this decade) can result in periods without new accruals.

Disclosure requirements. Recently, some have argued for the need to disclose to each employee the differences in his or her accrued benefits under the previous plan formula and his or her initial account balance under the cash balance plan. Moreover, they have argued that the wear-away period (if any) during a conversion should be explained, and a meaningful comparison should be provided to each worker of projected benefits under the amended plan compared with benefits that would have been earned under the previous plan formula. This appears to be based on a belief that it is critical for plan participants to have an appropriate opportunity to (a) voice their concerns regarding plan amendments so that employers are fully aware of them and (b) alert regulators to issues surrounding cash balance conversions that they deem important (White, 1999).

However, others in the pension policy community have questioned the logic in providing estimates under a benefit plan that no longer exists and have warned that Congress should proceed very cautiously in adding to the already substantial burdens of administering a cash balance or other defined benefit plan (Metras, 1999). Employers may be unreceptive to projecting future benefits due to the extremely sensitive nature of the estimates.³⁵

Importance of Pooling of Longevity Risk

Although defined benefit plans are not necessarily more or less generous than their defined contribution plan counterparts with respect to the amount of wealth generated by retirement age for an individual employee, there are fundamental differences in the payout stage at least for those defined benefit plans that do not offer lump-sum distributions to their employees at retirement. When defined benefit payouts are offered in the form of an annuity to all retirees, two of the risks mentioned in section one of this testimony are retained by the employer instead of being transferred to the employee: investment risk and longevity risk.

The value of the investment risk transfer is well known as is the fact that defined benefit plans (when not taken in the form of lump-sum distributions) eliminate the risk of outliving your income; however, there

does not appear to be any quantitative assessment of how important the latter might be. In this section, the value of longevity risk transfer is simulated based on mortality rates, the amount of retirement income and wealth the individual has at retirement, and the projected expenditures in retirement. Retirement income and wealth for residents of the state of Massachusetts born between 1936 and 1965 are projected to age 65 and then paid out in one of two methods. In each case, retirees are assumed to earn monthly Social Security benefits under the current system (i.e., no Social Security reform is assumed) as well as any defined benefit monthly payments that may be accrued from their employers. They will also accumulate individual account balances from defined contribution plans, cash balance plans, and IRAs (both from regular contributions as well as rollovers). The simulation model also estimates the value of net housing equity, if any, at age 65.

Once individuals reach age 65, they are assumed to retire and in each year for the remainder of their lives, the model simulates whether they continue to live another year and, if so, what their expenditures will be for the year. Retiree expenditures are assumed to be both deterministic (the amount spent on housing, utilities, etc. each year is assumed to be known and will be a function of the retiree's income, family status, and location) and stochastic (e.g., in most years the retiree will not require nursing home care; however, for years when it is simulated to be utilized the amount spent on this service could be catastrophic in value).

In the baseline case, it is assumed that all defined benefit plan benefits are paid in the form of an annuity while individual accounts are spent as needed to pay the simulated expenses. It is assumed any account balances automatically earn 5 percent per year,³⁶ but when the account has been depleted the retiree must exist solely on the annuity payments from Social Security and the defined benefit plan (if applicable) until further savings may be set aside. In the alternative case, it is assumed that all individual account wealth is paid out in the traditional manner of a defined benefit plan. This is accomplished by assuming an annuity is purchased at age 65 based on unisex mortality rates and a 5 percent discount rate.

In both cases, deficits are recorded in any year that there is insufficient retirement income to meet that year's simulated expenses and there is not a sufficient amount in the individual account balances or retiree savings to cover the difference. If additional money becomes available later in the retiree's life, the excess is recorded as a negative deficit up to the amount of the then existing cumulative deficit. Any amounts not spent from the annuity payments are also assumed to be earning 5 percent per year until they are needed to pay future expenses.

The value of net housing equity, if any, can make a significant difference in a retiree's ability to meet expenses later in life. However, there appears to be no consensus opinion on when, if ever, retirees will liquidate the equity in their house or in what form. Therefore, the model produces three different scenarios with respect to housing equity:

1. Retirees are assumed to never liquidate their housing equity.
2. Retirees are assumed to annuitize housing equity immediately at retirement (e.g., purchase a reverse annuity mortgage).
3. Retirees are assumed to liquidate the housing equity only when they needed to pay expenses and they keep the proceeds as a lump sum.

Figure 7a presents the reduction (in current dollars) for the average present value deficit for Massachusetts' single male retirees when accumulated throughout their simulated life span if all retirement wealth is paid out in the traditional manner of a defined benefit plan as opposed to the baseline situation where individual account balances are allowed to be spent when needed. In each case, the difference is largest when no liquidation of the housing equity is assumed and the values range from an average of \$1,671 to \$3,863. The reductions are slightly smaller when the model assumes housing equity is annuitized at retirement due to the fact that in some cases retirees who otherwise would have outlived their individual account balances and been left with insufficient monthly income will now have additional

income from the proceeds of the sale of the house. The smallest reduction takes place in the third housing equity scenario with the results ranging from \$747 to \$2,492.

Figure 7b provides similar figures for single females.³⁷ With the exception of the oldest birth cohort, nearly all of the dollar figures are larger for females than for males, largely as a result of the unisex nature of the annuity calculation. The reduction when no liquidation of the housing equity is assumed ranges from \$1,869 to \$3,990. There is less of a reduction (and in one case there is actually an increase) for females when the model assumes housing equity is annuitized at retirement as a result of their lower simulated net housing equity on average. Similar to single males, the smallest reduction takes place in the third housing equity scenario, with the results ranging from \$799 to \$2,726.

Figures 8a and 8b provide the same results as Figures 1a and 1b, however, in percentage terms instead of dollar values. Even though the dollar value of longevity risk transfer was typically larger for females, it provides a smaller percentage reduction due to the larger absolute values of deficits simulated for females. When the model assumes no liquidation of the housing equity, the percentage value ranges from 13–26 percent for males but only 6 to 14 percent for females. The smallest percentage reduction takes place in the third housing equity scenario, with the results ranging from 8–20 percent for males and 4–11 percent for females.

Conclusion

Whether the longevity risk transfer inherent in the standard type of defined benefit plan design will have value to an individual employee will obviously depend, inter alia, on their actual life span. As this will not be known in advance, this analysis measures the lifetime deficit reductions simulated to occur when all retirement plan wealth is assumed to be paid out under a defined benefit type annuity and pools the results across all members of each birth cohort. In all cases the defined benefit plan design results in a positive reduction. In percentage terms the results vary from a low of 8 percent to a high of 26 percent for single males depending on birth cohort and housing equity assumption. Similar analysis for females ranges from a low of 4 percent to a high of 14 percent.

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Endnotes

¹ Portions of this section borrow heavily from Olsen and VanDerhei (1997)

² Life annuities provide a payment on a periodic basis for the life of the participant and possibly his or her spouse

³ There is often a mistaken notion that a DC plan will commit the employer to a specific contribution (typically a percentage of compensation) each year. While this is true of one type of DC plan (a money purchase plan requires the same contribution each year unless the plan is amended or terminated), employer contributions to a DC plan may be made as a percentage of profits, a percentage return on investment or equity, or as a discretionary amount decided annually. Usually DC plans allocate the contribution as a percentage of employees' earnings or savings.

⁴ Flat-benefit formulas are often encountered under collectively bargained plans.

⁵ Under the latter formula, an employee would receive the same benefit at retirement regardless of the number of years worked (typically subject to some minimum threshold such as 10 years). Under the former, an employee typically earns more benefits for every year of additional service.

⁶ Employees' contributions to DB plans are only granted tax-favored status in public plans.

⁷ Bodie (1990) develops the first four and also includes a fifth risk: Social Security cuts. The latter refers to the political risk that the financial problems currently facing the Social Security system may be resolved by cutting back on benefits currently scheduled to be paid. See Olsen, VanDerhei, and Salisbury (1997) for a more complete discussion of this issue.

⁸ For an exhaustive list of plans specifically excluded from coverage by the PBGC, see pages 278-279 of Allen et al., 1997.

⁹ An individual can use self-annuitization as a strategy to ensure that he or she does not outlive a particular amount of principal. This may be accomplished by dividing the account balance each year by his or her life expectancy at that point in time and limiting annual consumption to the amount determined by the calculation. This step is typically repeated each year, and the annual amount will vary from year to year depending on investment income and changing life expectancies.

¹⁰ There may be second order impacts to consider. For example, a sponsor that has had extraordinarily favorable investment experience in recent years may be more likely to provide future benefit improvements or ad hoc cost-of-living adjustments (COLAs).

¹¹ Note that this is not the same as guaranteeing the standard of living will not be impacted. For an interesting discussion of the possible application of this concept to retirement plans, see Merton (1983).

¹² See Clark, Allen, and Sumner (1983) for a survey of practices among private sponsors.

¹³ Prior to 1980, employer pension accounting was governed by Accounting Principles Board Opinion No. 8, *Accounting for the Cost of Pension Plans*. This opinion replaced the previous discretionary method of accounting for pension costs with a possible range of minimum and maximum annual costs based on a number of approved actuarial cost methods. However, the relevance of this methodology was questioned after the enactment of the Employee Retirement Income Security Act (ERISA) in 1974. FASB therefore added two pension projects to its agenda: one for the pension plan itself (FAS 35) and one to cover accounting by plan sponsors for pension benefits. The latter project yielded an interim statement (FAS 36) in 1980 that was later replaced with FAS 87. The new accounting requirements mandated by FAS 87 were phased in over several years. The income statement provisions were to be applied for fiscal years beginning after December 15, 1986 while the balance sheet provisions were to be applied for fiscal years beginning after December 15, 1988. For additional detail on the evolution of pension accounting standards see VanDerhei (1988).

¹⁴ A recent study by two Federal Reserve Board staff members concludes that stocks of those sponsors reporting substantial earnings from pension plans were systematically overvalued in recent years as a result of the accounting rules (Weil, 2003). The authors of the study conclude that investors tend to apply the same P/E multiples to pension earnings as they do to earnings from the sponsor's core operations.

¹⁵ See Exhibit 2 of Levy and Young (2003) for a comparison of FRS 17, FAS 87 and the international standard, IAS 19.

¹⁶ An immunization program attempts to construct a portfolio of bonds whose market value equals the present value for the selected set of liabilities and, even if the interest rate changes, whose value will always be at least as great as the value of the liabilities.

¹⁷ As mentioned above, the Pension Benefit Guaranty Corporation insures promised benefits (subject to a maximum monthly limit) when a bankrupt plan sponsor is unable to pay all the promised benefits from an underfunded plan.

¹⁸ Milliman USA (2003) reported similar results in a survey of 100 of the largest companies with the largest defined benefit plans: a funding ratio of 82 percent with 89 percent of the companies in a deficit position.

¹⁹ However, the full-funding limit based on 170 percent of current liability is reinstated pursuant to the general sunset provision of EGTRRA for years beginning after 2010.

²⁰ For more detail on the process of reversions see VanDerhei (1989).

²¹ Portions of this section are based on VanDerhei (1999).

²² Although this testimony focuses exclusively on cash balance plans, hybrid arrangements that combine traditional defined benefit and defined contribution concepts include pension equity plans, age-weighted profit sharing plans, new comparability plans, floor-offset plans, new comparability profit-sharing plans and target plans (Campbell, 1996).

²³ All assumptions for this chart replicate those in Purcell (1999) with the exception of the benefit accrual rate which was decreased to 0.91 percent to allow for benefit equivalence of the two programs assuming 40 years of participation in the same program. The pay credits varied as follows: years 1-10: 4 percent, 11-20: 5.5 percent, 21-40: 7 percent.

²⁴ For example, age-weighted pay credits under the cash balance plans and early retirement provisions under the final-average plan.

²⁵ Note that they will not be exactly equal given that the pay credit differs from the assumed interest credited to the cash balance plan (5.6 percent).

²⁶ In addition to these retirement plan-specific reasons, there may also be overall compensation or administrative concerns that are specifically addressed through a conversion. Two of the more common reasons include supporting a total compensation philosophy in the context of a new performance-based arrangement with employees and providing a platform for merging disparate pension plans as a result of merger and acquisitions activity (Towers Perrin, 1999).

²⁷ Using both administrative records and worker reports of pension provisions.

²⁸ In the case of the job-changer, it is assumed that the full amount of any cash balance proceeds would be reinvested in a tax-deferred retirement savings account and earn an average annual rate of return of 8.65 percent, while the employee covered by a final-average plan would remain in a terminated vested status and not receive lump-sum distributions.

²⁹ The calculation is obviously more complicated in an integrated plan.

³⁰ For example, at AT&T, employees can receive a cash payment for the entire amount in their accounts if the difference between the account balance and the highest year of eligible pay is \$30,000 or less. Otherwise, employees are limited to a cash payment equal to one year's worth of their highest eligible pay, with the rest paid as a monthly annuity (Burlingame and Gulotta 1998).

³¹ For example, Eastman Kodak reportedly will introduce a first time match to its 401(k) plan to counterbalance losses from its conversion from a final average plan to a cash balance plan (Morrow, 1999).

³² In addition to the potential cash flow problems arising from increased LSDs under cash balance plans, the liability durations of cash balance plans appear to be between seven to eight years as opposed to the 12- to 20-year durations typically calculated for traditional final average plans. Although the eventual impact (once the various transition provisions allow more of the liabilities to be generated via the new cash balance component) of the decreasing liability durations on the plan sponsor's asset allocation is debatable (Williamson, 1999) it would appear that the

expected rate of return on cash balance portfolios will remain significantly greater than the expected interest rate credited to the employees.

³³ See Bone (1999) for a more complete description of the calculations required under FASB Statement No. 87.

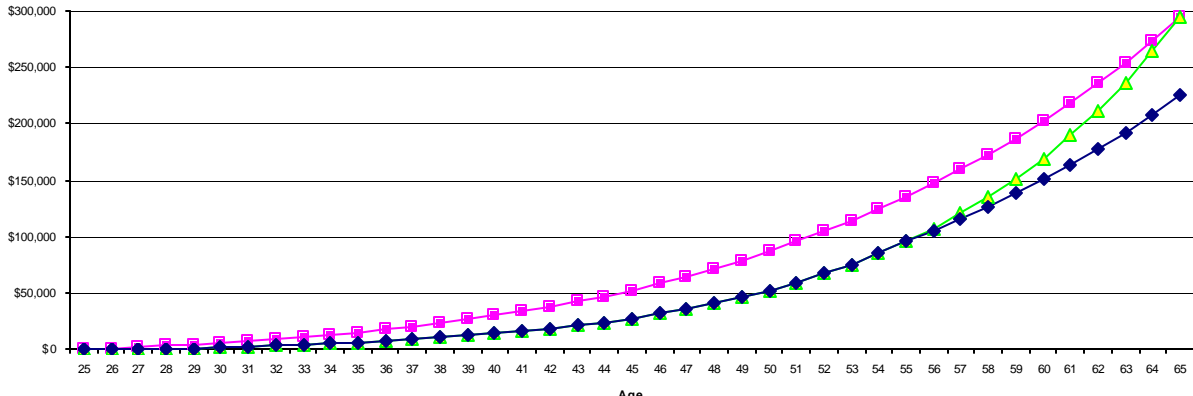
³⁴ As the authors point out, this is a procedure that can be utilized by plan sponsors with or without a shift to a cash balance plan.

³⁵ See Sher (1999, p. 22) for an illustration of how the increasing or decreasing the current 30-year Treasury bond rate by 1 percent can impact the relative comparisons between an existing traditional defined benefit plan and a new cash balance plan.

³⁶ Although the EBRI/ICI Participant-Directed Retirement Plan Data Collection Project has asset allocation information on millions of individual employees, no such data exists for retirees.

³⁷ Similar information for married couples will be available once information is obtained with respect to utilization of joint-and-survivor options for qualified plans.

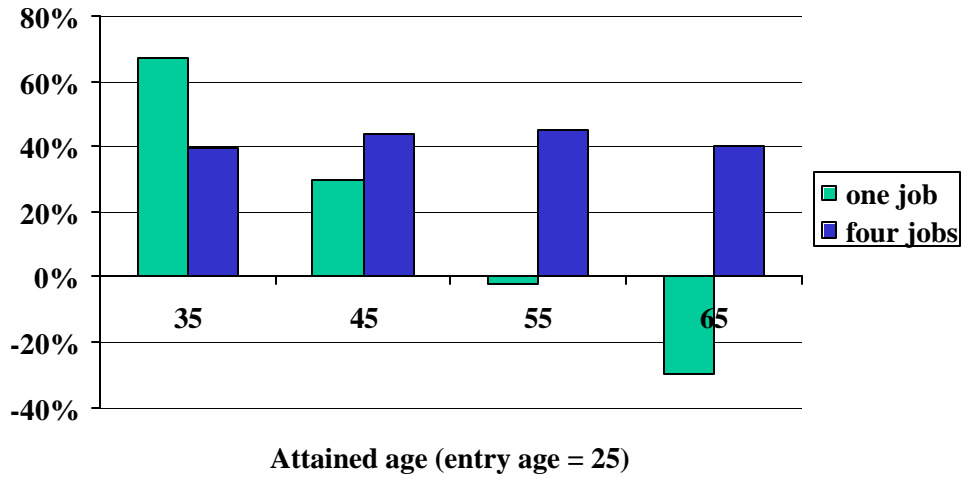
Figure 1: Illustration of a conversion from a hypothetical traditional final average defined benefit plan to a hypothetical service weighted cash balance plan (without transition credits) at age 55



Source: Author's tabulations based on assumptions in Purcell (1999) with the following modification: the benefit accrual rate was decreased to 0.91 percent to allow for benefit equivalence of the two programs assuming 40 years of participation in the same program.

—■— cash balance (service weighted) —▲— traditional final average defined benefit plan —◆— conversion at age 55 (without transition credit)

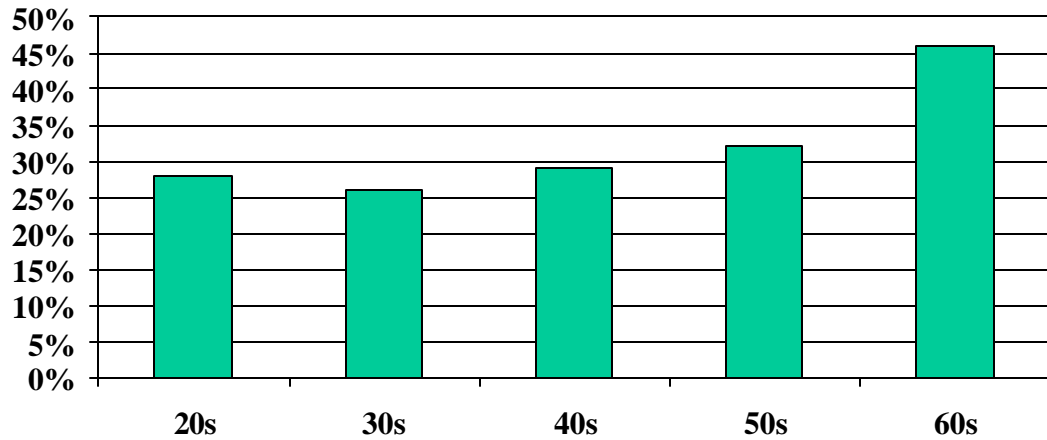
Figure 2. HYPOTHETICAL percentage increases in annual benefits at NRA Cash Balance vs Final Average Plan: impact of job tenure



Source: EBRI tabulations based on tables from Patrick Purcell, Pension Issues: Cash-Balance Plans, CRS Report for Congress, May 24, 1999

[return](#)

Figure 3. Percentage of 401(k) participants with zero exposure to diversified equities: 1996



N.B.: approximately 1/2 of these participants have exposure to company stock and/or balanced funds

Source: *401(k) Plan Asset Allocation, Account Balances, and Loan Activity* by Jack VanDerhei, Russell Galer, Carol Quick, and John Rea, Joint EBRI/ICI publication, January 1999

Figure 4
Benefit Reductions at Age 55 Attributable to the Elimination of Early Retirement Subsidies in the Shift From Traditional Pensions to Hybrid Plans

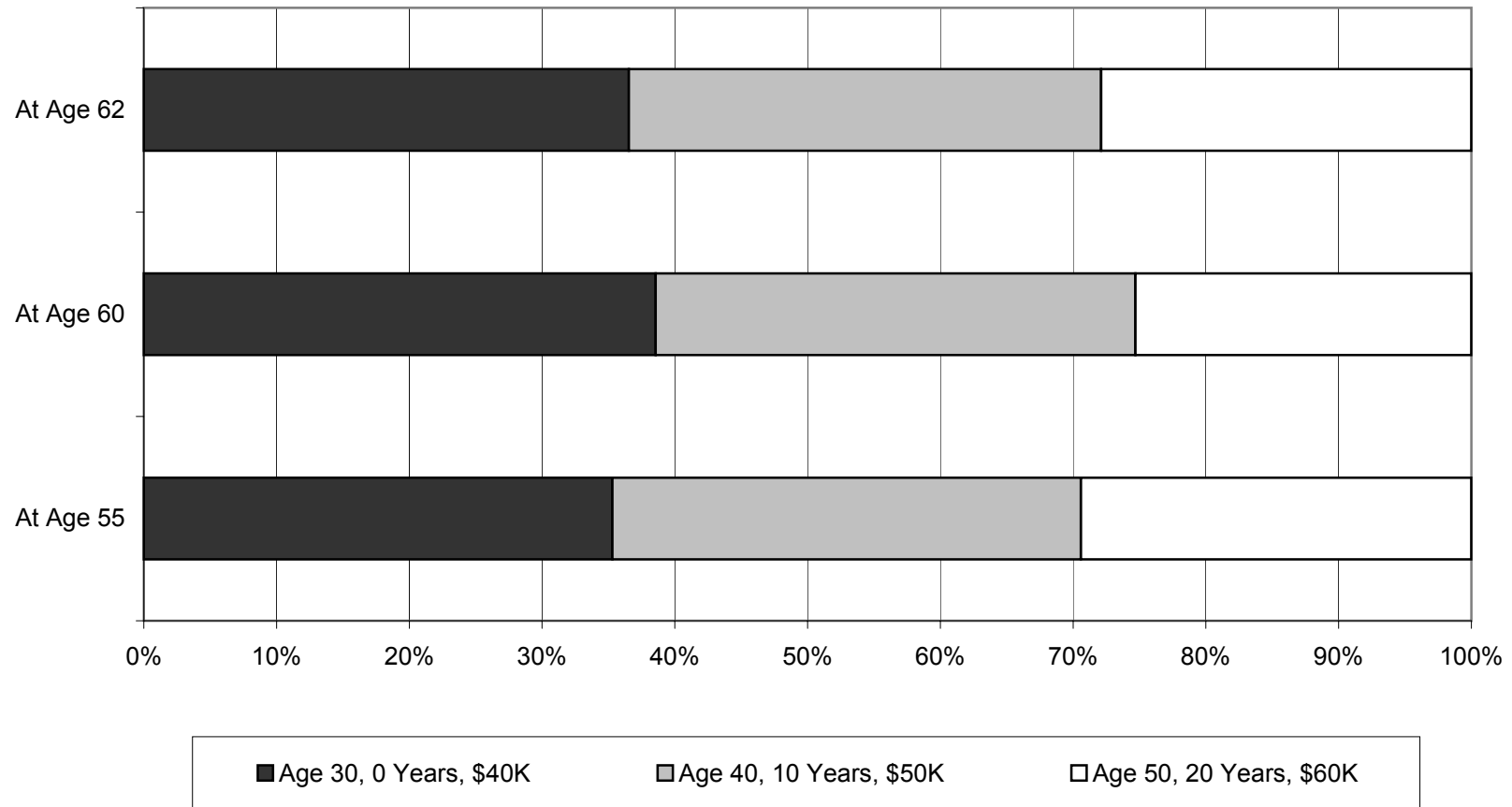
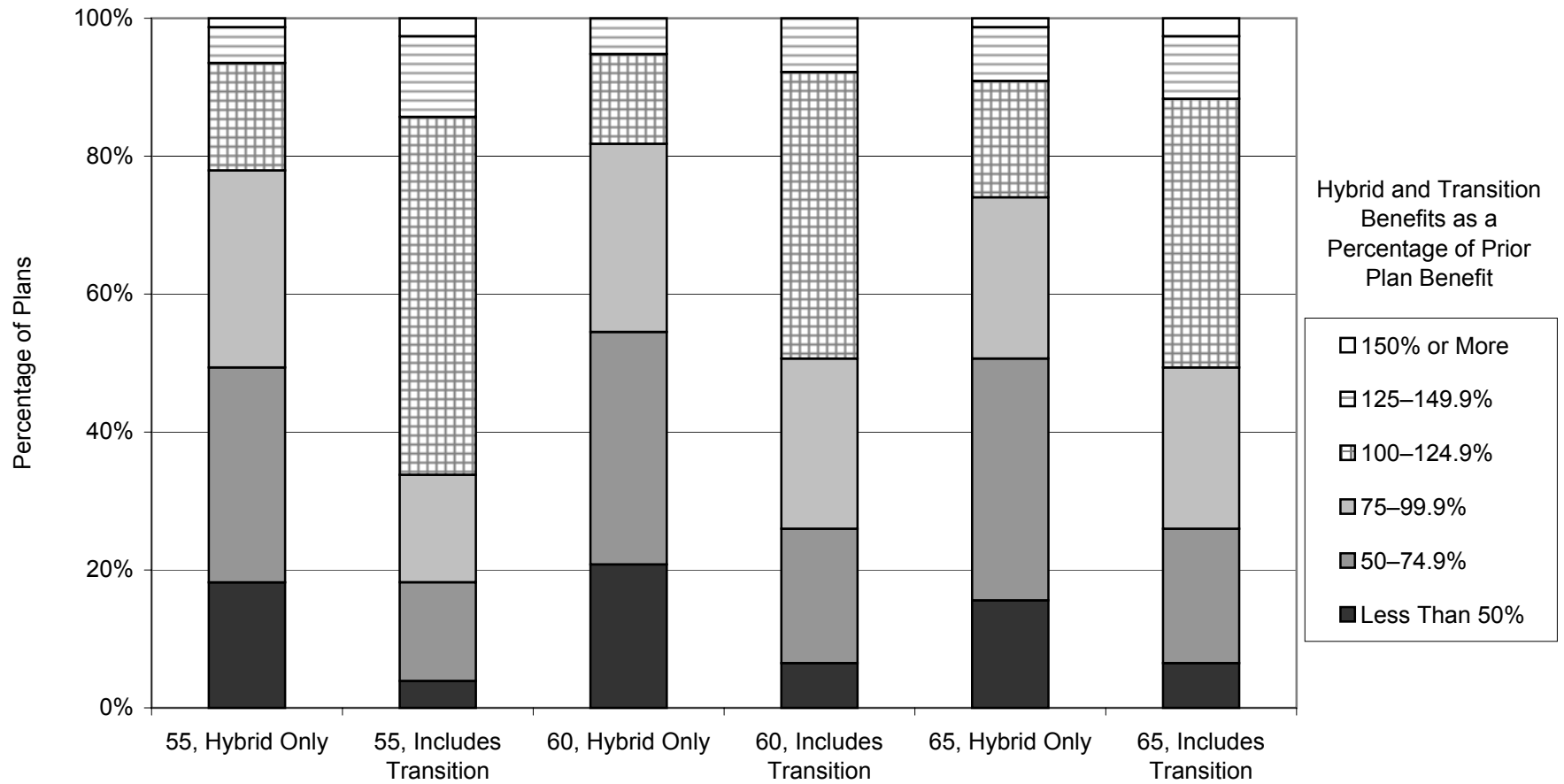
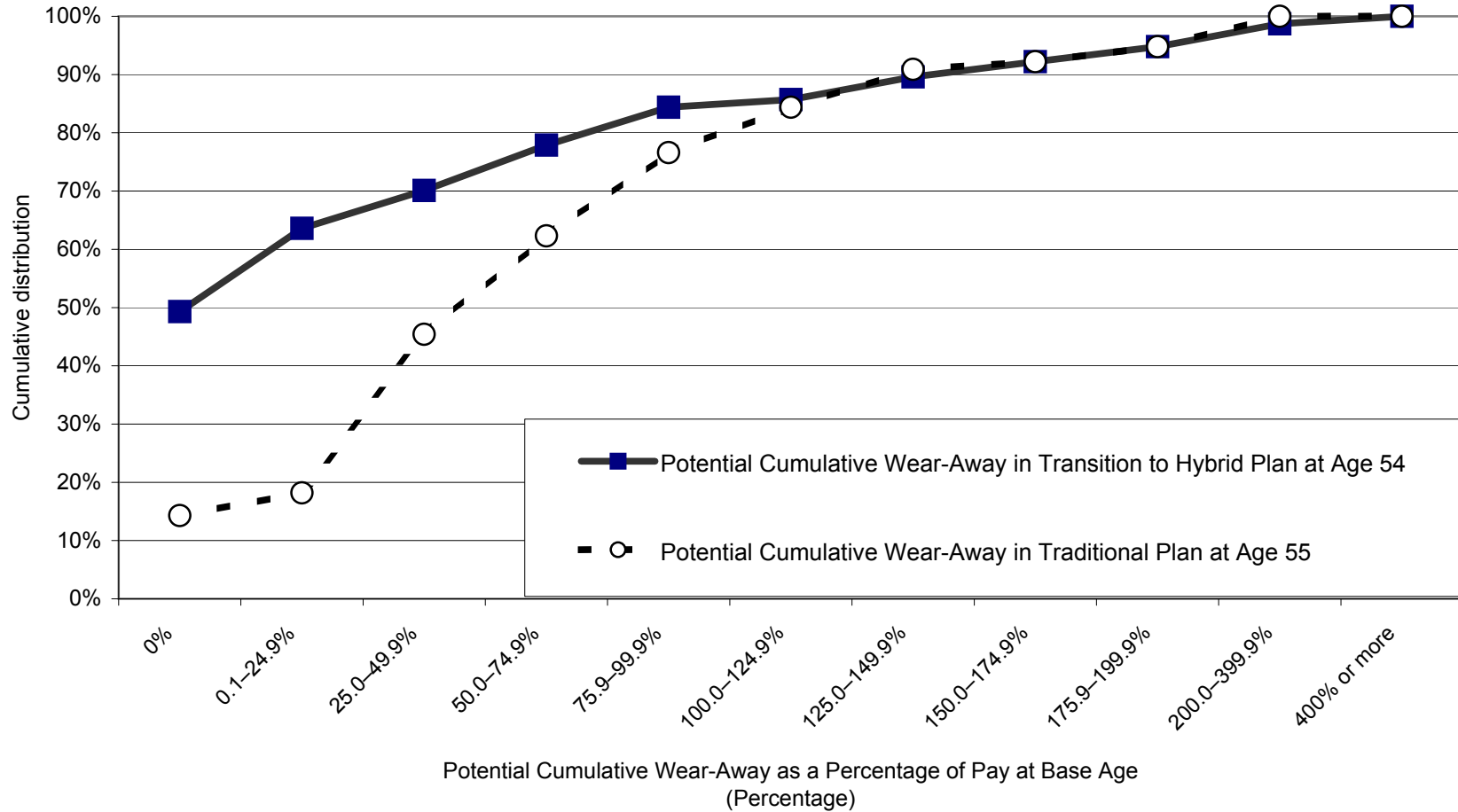


Figure 5
Benefits Under Hybrid Plans Relative to Prior Plans,
For Workers Age 50 With 25 Years of Service With Salary of \$60,000 at Conversion



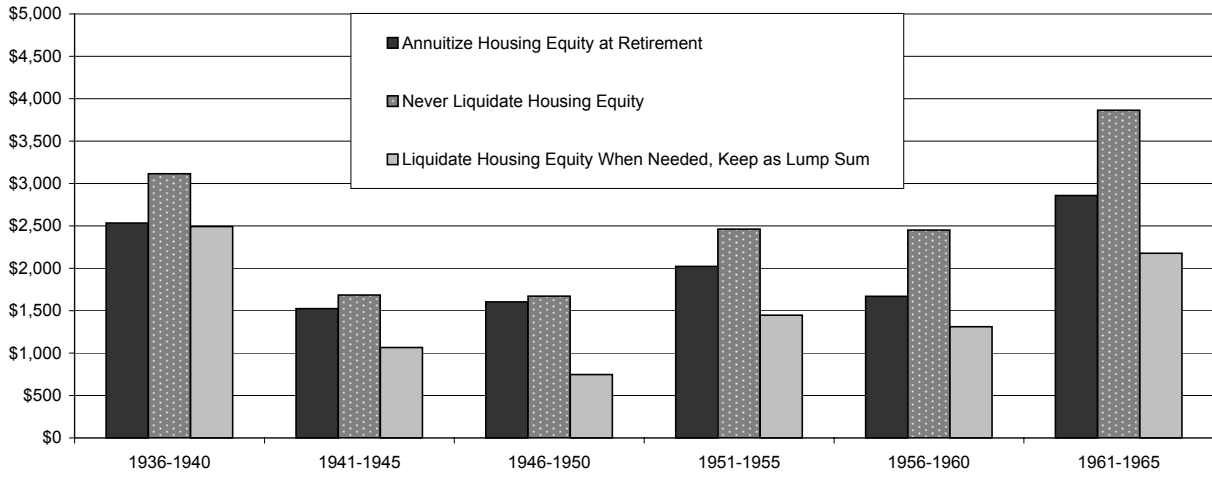
Source: Clark and Schieber (2000)

Figure 6
Potential Wear-Away for a Worker Age 54 With 25 Years Service in the Transition
to a Hybrid Plan, Compared With a Comparable Worker in the Prior Plan
(Percentage of Plans)



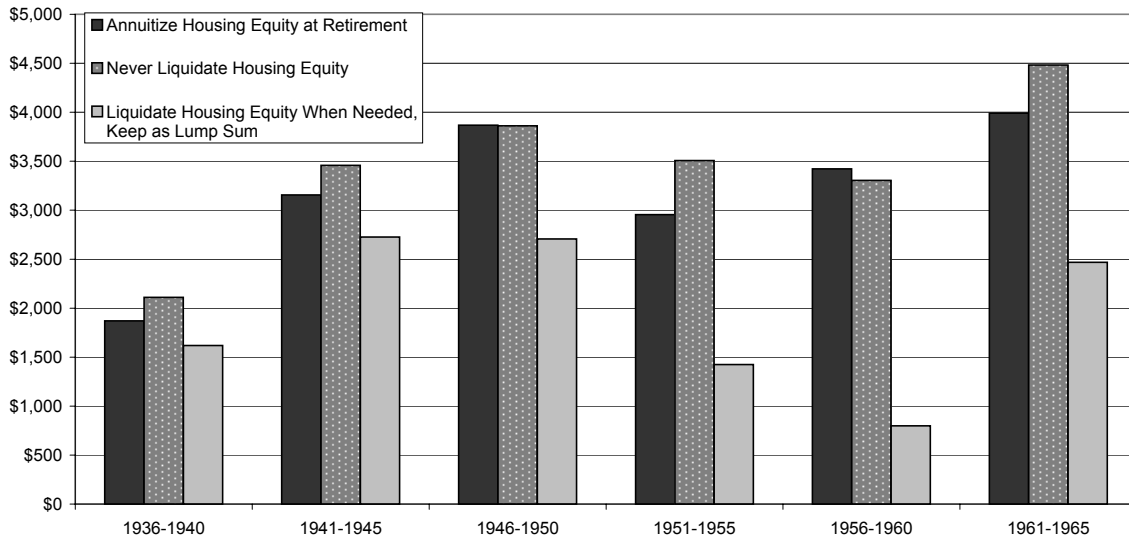
Source: Clark and Schieber (2000).

Figure 7a
Reduction in Current Dollars for Average Ultimate Present Value Deficit for Massachusetts' Single Male Retirees,
If All Retirement Wealth Is Paid Out in the Traditional Manner of a Defined Benefit Plan



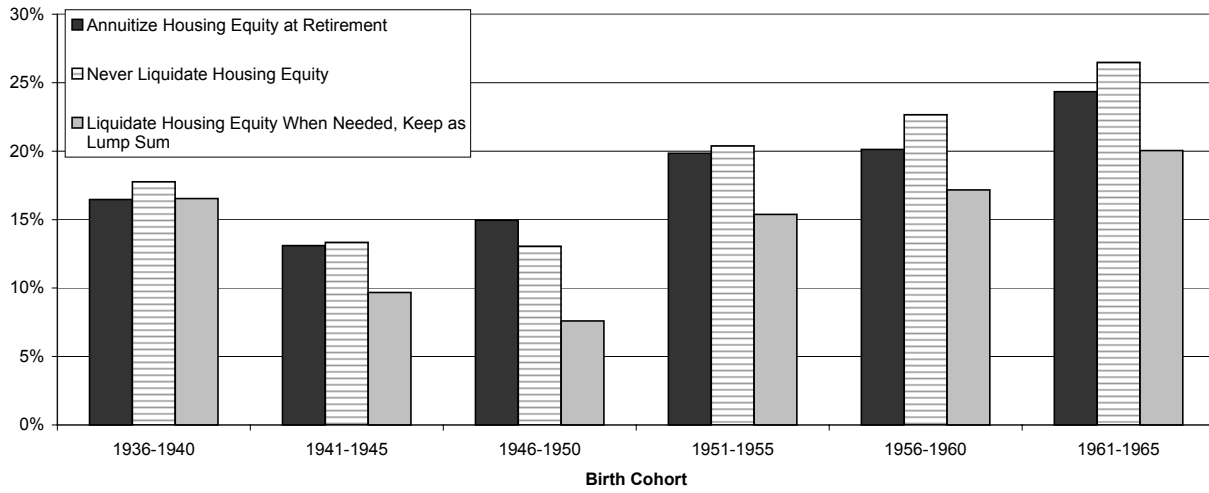
Source: EBR-ERF Retirement Income Projection Model.

Figure 7b
Reduction in Current Dollars for Average Ultimate Present Value Deficit for Massachusetts' Single Female Retirees, If All Retirement Wealth is Paid Out in the Traditional Manner of a Defined Benefit Plan



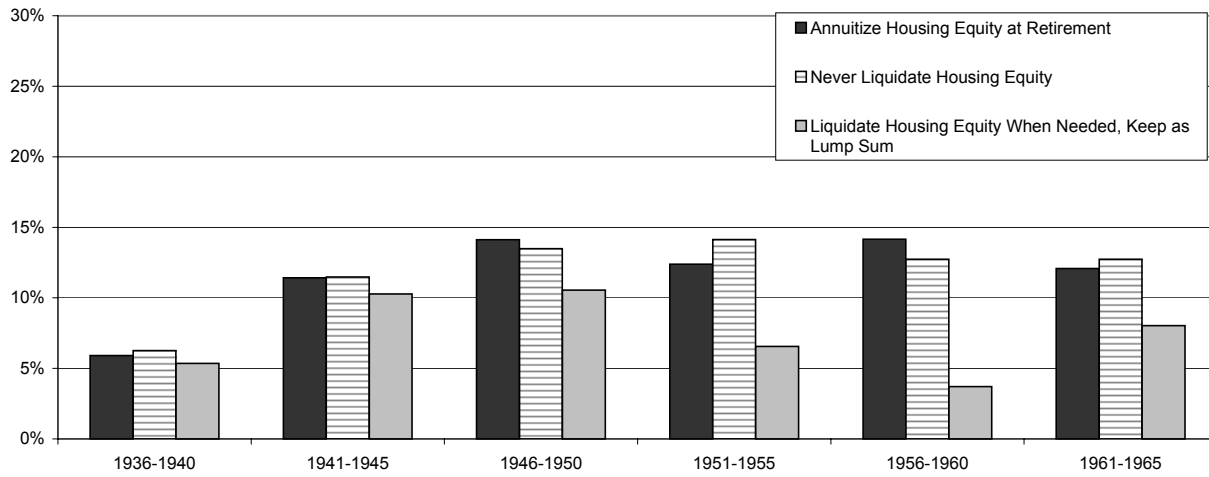
Source: EBR-ERF Retirement Income Projection Model.

Figure 8a
Percentage Reduction For Average Ultimate Present Value Deficit for Massachusetts' Single Male Retirees,
If All Retirement Wealth Is Paid Out in the Traditional Manner of a Defined Benefit Plan



Source: EBR-ERF Retirement Income Projection Model.

Figure 8b
Percentage Reduction For Average Ultimate Present Value Deficit for Massachusetts' Single Female Retirees, If All Retirement Wealth Is Paid Out In the Traditional Manner of a Defined Benefit Plan



Source: EBR-ERF Retirement Income Projection Model.